

## REMARKS

The Applicants appreciate the thoroughness with which the subject application continues to be examined and the allowance of claims 22-35. By this amendment, certain claims have been amended as set forth above to overcome the Examiner's rejections and more concisely claim and describe the present invention. New claim 52 has been added. Claims 1-21 remain in the application for reconsideration by the Examiner (claims 22-35 having been allowed and claims 36-51 having been withdrawn). The Examiner's allowance of the additional pending claims is earnestly solicited.

### MATTERS RELATED TO THE CLAIMS

Within the first claim set comprising claims 1-14, claims 1, 3, 5, 6, 8 and 10-12 have been rejected under Section 103(a) as unpatentable over Wu (6,720,256) in view of Hori (5,445,710). Claim 2 has been rejected under Section 103(a) as unpatentable over Wu in view of Hori and further in view of Shen 6,693,038). Claim 4 has been rejected under Section 103(a) as unpatentable over Wu in view of Hori and further in view of Miyakawa (6,3242,449). Claim 14 has been rejected under Section 103(a) as unpatentable over Wu in view of Hori and further in view of Ueno (4,560,458). Claims 7, 9 and 13 have been objected to but would be allowable if rewritten in independent form including the limitations of the base claim and all intervening claims.

To further define the invention over the art of record, the Applicants have amended claim 1 as set forth above. In particular, the third paragraph of claim 1 now claims "forming an opening extending from a surface of the structure to the material layer, wherein the material layer is exposed on a sidewall of the opening," and the fifth paragraph claims "etching the material layer by allowing plasma to contact the material layer through the opening, wherein at least a portion of the material layer removed during the etching step is laterally disposed relative to the opening." Support for this amendment is found in the application at Figure 5 and the accompanying text in paragraphs [0027] and [0028].

In contrast, Wu discloses etching a silicon-containing layer 57, i.e., "[o]pening 60 in photoresist layer 59 is etch transferred through silicon layer 57 using an etch comprised of O<sub>2</sub> and a fluorine containing plasma or with a H<sub>2</sub> and fluorine containing plasma to form a structure shown in FIG. 5b." Reference to Wu's FIG. 5b reveals that the portion of layer 57 removed by

the etch process is vertically aligned with the opening 60 in the photoresist layer 59. Thus Wu lacks any disclosure, suggestion or inference related to, "etching the material layer by allowing plasma to contact the material layer through the opening, wherein at least a portion of the material layer removed during the etching step is laterally disposed relative to the opening," as set forth in Applicant's amended claim 1.

As to the citation of Hori against the present application in conjunction with Wu, the Applicants respectfully submit that there is no reference in Wu or Hori that discloses, suggests or motivates combining their respective disclosures to disclose or suggest the Applicants' invention as set forth in amended claim 1. The Examiner merely hypothesizes as to the combinability of the two references, claiming they represent analogous art and concludes that it would have been obvious to combine the references to achieve certain product improvements and to avoid etching problems. The Examiner cites Hori's reference to a temperature range between 250 °C to 450 °C and concludes that this temperature range can be used with the Wu disclosure. There is simply no basis for reaching this conclusion especially in light of Wu's reference to etch processing temperatures of 225 °C, as it is not clear that the material layers of Wu can survive exposure to Hori's temperature range of 250 to 450 °C. The integrated circuit fabrication process and its constituent steps require precise control of the operative parameters associated with each process step. Thus it unreasonable to arbitrarily suggest that a temperature range applied to one process step in one reference can be applied to a different process step in a different reference. A process step temperature range can be modified only after conducting a detailed and thorough analysis of the effects of the new temperature range on the resulting product.

It is respectfully submitted that dependent claims 3, 5, 6, 8 and 10-12, depending either directly or indirectly from amended independent claim 1, each include claim elements that further distinguish the invention over the art of record in conjunction with claim 1 from which they depend.

In accordance with the Examiner's suggestion, the Applicants have rewritten claim 7 in independent form. Objected to claims 9 and 13 have been amended to depend from new independent claim 7, with claim 13 including the material from claim 12 from which it previously depended. With these amendments it is respectfully submitted that claims 7, 9 and 13 are now in condition for allowance.

Within the second claim set comprising claims 15-21, claims 15, 20 and 21 have been rejected under Section 103(a) as unpatentable over Wu in view of Hori. Claim 19 has been rejected under Section 103(a) as unpatentable over Wu in view of Hori and further in view of Miyakawa. Claims 16, 17 and 18 have been objected to but would be allowable if rewritten in independent form including the limitations of the base claim and all intervening claims.

To further define the invention over the art of record, the Applicants have amended claim 15 as set forth above. In particular, claim 15 now claims, "forming an opening extending from a surface of the structure to the sacrificial layer, wherein the sacrificial layer is exposed on a sidewall of the opening; and exposing the sacrificial layer to the plasma etchant through the opening to remove regions of the sacrificial layer without compromising the integrity of the semiconductor devices, wherein at least a portion of removed sacrificial layer material is laterally disposed relative to the opening." Support for this amendment is found in the application at Figure 5 and the accompanying text in paragraphs [0027] and [0028].

In contrast, Wu discloses etching a silicon-containing layer 57 as described above in conjunction with the rejection of claim 1. It is respectfully submitted that the Applicant's invention as set forth in amended claim 15 is patentably distinct from Wu and Hori.

It is respectfully submitted that each of the rejected dependent claims 15, 19, 20 and 21 further distinguishes these inventions over the art of record in conjunction with claim 15 from which they depend.

The Applicant's have adopted the Examiner's suggestion to rewrite claim 16 in independent form. Objected to claim 17 has been amended to depend from rewritten claim 16 and claim 18 continues to depend from claim 17. It is submitted that these amendments are consistent with the Examiner's suggestion to rewrite claims 16-18 in independent form and claims 16-18 should now be allowable.

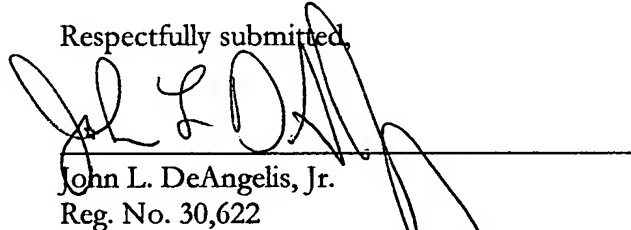
As to the combinations of Wu, Hori and Shen; Wu, Hori and Miyakawa; and Wu, Hori and Ueno forming the basis of certain rejections under Section 103 as set forth above, there must be some basis, motivation or suggestion in at least one of the cited references for making the proposed combination. These bases, motivations and suggestions are lacking in the cited references and thus it is not seen how one skilled in the art who is faced with the same problem confronting the Applicants and with no prior knowledge of the Applicants' invention, would consult these particular reference combinations.

New claim 52 claims a process for selectively etching a material layer formed in a structure. The claim includes, "exposing the material layer to the plasma along an external surface of the structure; and etching the material layer along the external surface, wherein at least a portion of the material layer removed during the etching step is laterally disposed relative to the external surface." These elements are not disclosed or suggested by the cited references.

The Applicants have attempted to comply with all of the points raised in the Office Action and it is believed that the remaining claims in the application, i.e., 1-21 and new claim 52 are in condition for allowance. In view of the foregoing amendments and discussion, it is requested that the Examiner's claim rejections have been overcome. It is respectfully requested that the Examiner reconsider these rejections and objections and issue a Notice of Allowance for all the claims pending in the application.

If a telephone conference will assist in clarifying or expediting this Amendment, Examiner Abraham is invited to contact the undersigned at the telephone number below.

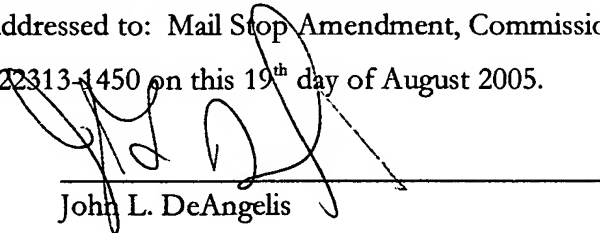
Respectfully submitted,



John L. DeAngelis, Jr.  
Reg. No. 30,622  
Beusse Brownlee Wolter Mora & Maire, P.A.  
390 N. Orange Ave., Suite 2500  
Orlando, FL 32801  
(407) 926-7710

CERTIFICATE OF MAILING

I HEREBY CERTIFY that this Amendment is being deposited with the U.S. Postal Service as first class mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 19<sup>th</sup> day of August 2005.



John L. DeAngelis